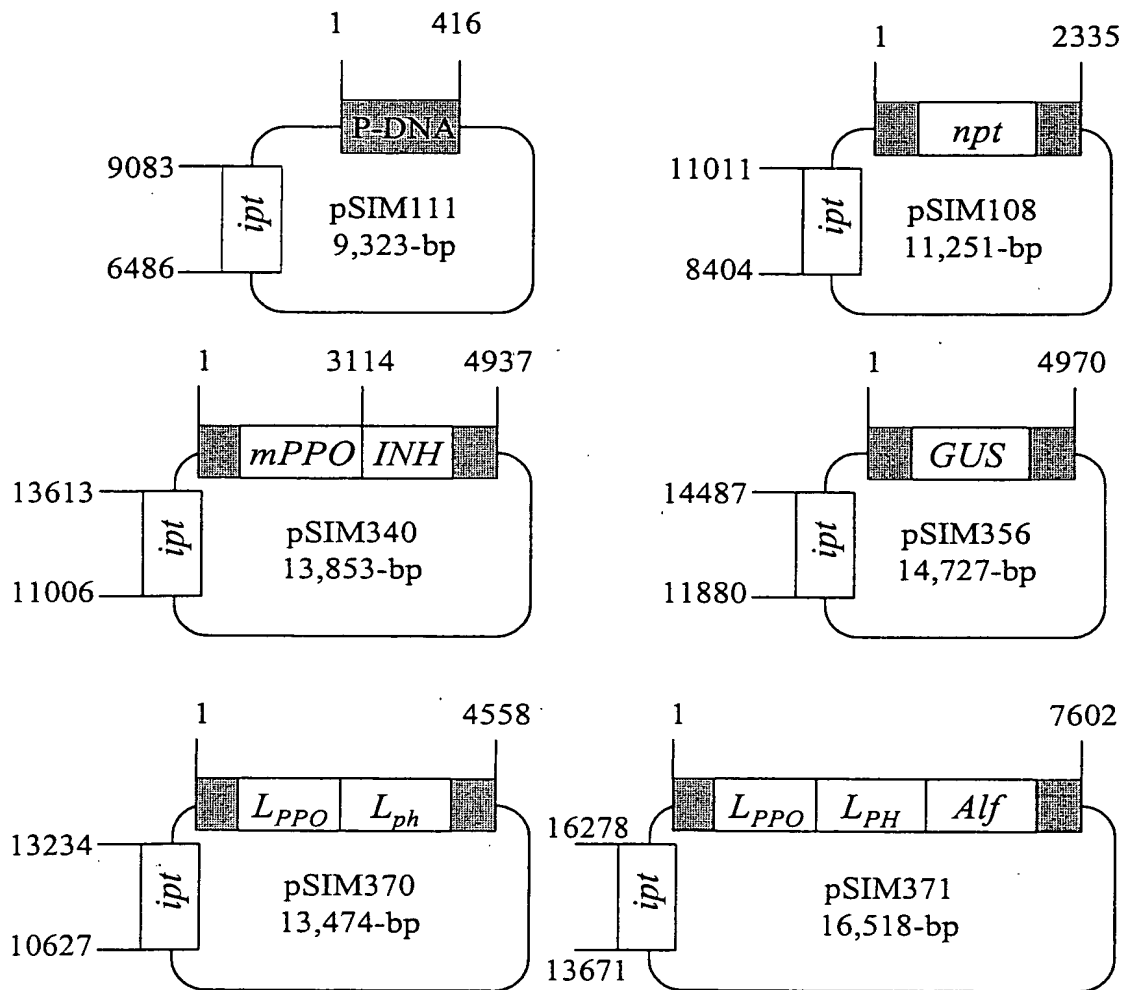


FIGURES

Figure 1. Diagrams for some P-DNA vectors



Title: PRECISE BREEDING
Inventor(s): Rommens et al.
Atty. Dkt. No.: 058951-0167

Figure 2. Alignment of potato and tobacco invertase inhibitor proteins

A.

```

St-inh1      MRNLFPILMLITNLALNNDNNNNNNNNNNNNNYLIHATCRETPYYSCLTTLQSGPRSNEVE 60
Nt-inhh      MRNLFPILMLITNLAFN-DNNNSNN-----IINTTCRATNYPLCLTTLHSDPRTSEAE 53
              *****:*****:* ****:*          :*:*** * . *****:*.**:.*
              :*:***:*****:*****:*.**:***** * *****:.* ****:*****

St-inh1      GGDAITTLGLIMVDAVKSIEIMEKIKELEKSNPEWRAPLSQCYVAYNAVLRADVTAV 120
Nt-inhh      GAD-LTTGLVMVDAVKLSIEIMKSIKKLEKSNPELRPLSQCYIVYYAVLHADVTAV 112
              *. * :*****:***** *****:*.**:***** * *****:.* ****:*****

St-inh1      EALKKGAPKFAEDGMDDVVAEAQTCEYSFNYYNKLDPFISNLSREIIELSKVAKSIIRML 180
Nt-inhh      EALKRGVPKFAENGMDVAVEAETCEFSFK-YNGLVSPVSDMNKEIIELSSVAKSIIRML 171
              *****:*****:* **..*:***:***; ** * *:***:*****.*****

St-inh1      L 181
Nt-inhh      L 172
              *
```

B.

```

St-inh1      MRNLFPILMLITNLALNNDNNNNNNNNNNNNNYLIHATCRETPYYSCLTTLQSGPRSNEVE 60
Nt-inh1      MKNLIFLTMFLTILLQTNANN-----LVETTCKNTPNYQLCLKTLLSDKRS--AT 48
              *::: : *::* * . * **          *:***:*** *.***.* * . ** .

St-inh1      GGDAITTLGLIMVDAVKSIEIMEKIKELEKSNP--EWRAPLSQCYVAYNAVLRADVTV 118
Nt-inh1      G--DITTLALIMVDAIKAKANQAAVTISKLRHSNPPAAWKGPLKNCAFSYKVILTASLPE 106
              * ****.*****:***: : .*:*.*** *:***.* :*:*** *..

St-inh1      AVEALKKGAPKFAEDGMDDVVAEAQTCEYSFNYYNKLDPFISNLSREIIELSKVAKSIIR 178
Nt-inh1      AIEALTKGDPKFAEDGMVGSSGDAQECE---EYFKGSKSPFSALNIAVHELSDVGRAIVR 163
              *:***.* ***** . .:*** ** :*: . *:* * . : ***.***:***

St-inh1      MLL 181
Nt-inh1      NLL 166
              **
```

Figure 3. Gene-free expression cassettes



<i>Promoter</i>	<i>SOI*</i>	<i>Spacer</i>	<i>Total size</i>
P:GBSS-small	Leader a/w* <i>R1</i>	Ubi intron	1729-bp
P:GBSS-small	Leader a/w <i>R1</i>	GBSS spacer	1397-bp
P:GBSS-large	Leader a/w <i>R1</i>	Ubi intron	2005-bp
P:GBSS-large	Leader a/w <i>R1</i>	GBSS spacer	1397-bp
P:GBSS-small	Trailer a/w <i>R1</i>	GBSS spacer	2042-bp
P:GBSS-small	Trailer a/w <i>R1</i>	Ubi intron	1705-bp
P:GBSS-large	Trailer a/w <i>R1</i>	GBSS spacer	2313-bp
P:GBSS-large	Trailer a/w <i>R1</i>	Ubi intron	1981-bp
P:GBSS-small	Leader a/w <i>Phosph.</i>	GBSS spacer	-
P:GBSS-small	Leader a/w <i>Phosph.</i>	Ubi intron	-
P:GBSS-large	Leader a/w <i>Phosph.</i>	GBSS spacer	1852-bp
P:GBSS-large	Leader a/w <i>Phosph.</i>	Ubi intron	2184-bp
P:GBSS-large	Leader a/w <i>PPO</i>	Ubi intron	1958-bp
P:GBSS-large	Leader a/w <i>PPO</i>	GBSS spacer	1626-bp
P:GBSS-small	Leader a/w <i>PPO</i>	Ubi intron	-
P:GBSS-small	Leader a/w <i>PPO</i>	GBSS spacer	-

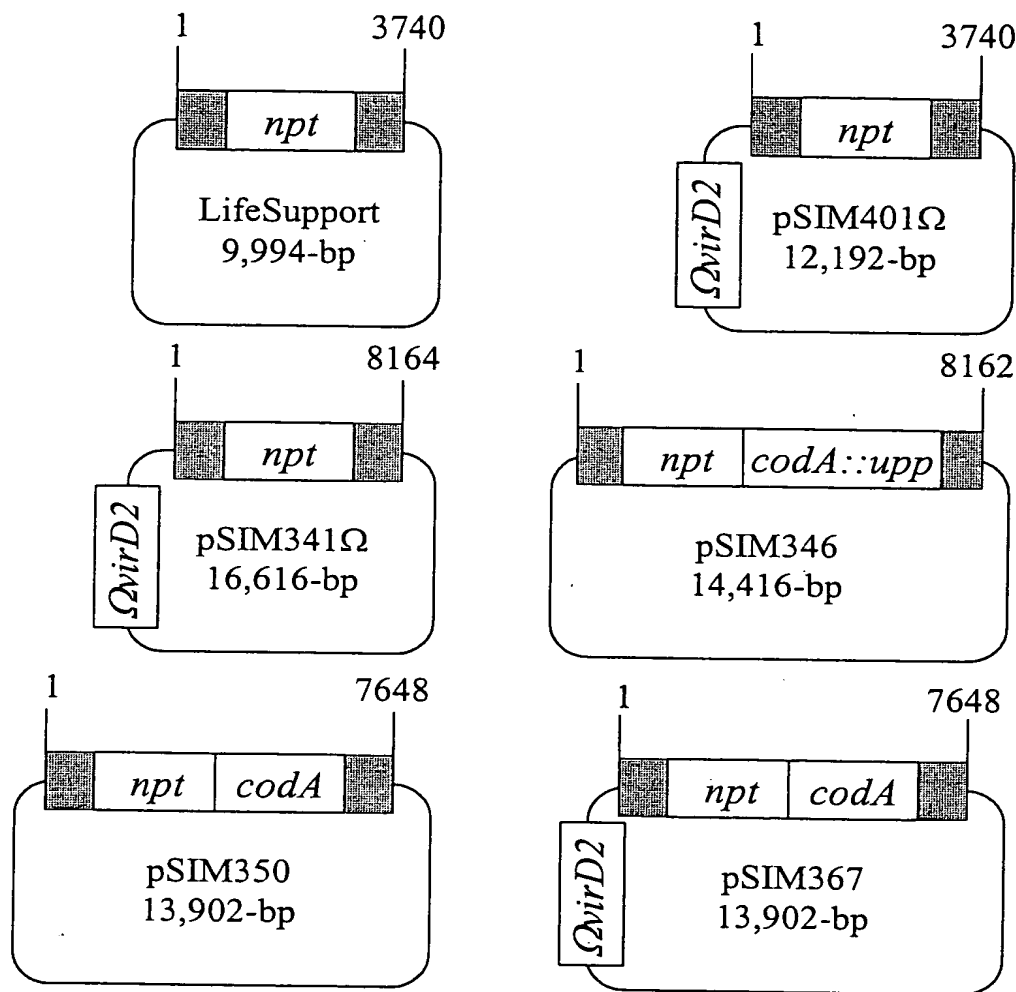
*: sequence-of-interest; **: "associated with"

Figure 4. Alignment of the 3'-end of tuber-expressed PPO genes and trailers associated with these genes. Stop codons ('TAA') are underlined. The trailer sequence used for genetic modification of potato plants was isolated from 'P-PPO3', and is downstream from the stop codon (TTAGTC...ACAATT).

P-PPO3	CTGGCGATAACGGAAC	TGTTGGAGGATATTGGTTT	GGAAGATGAAGATACTATTGCGGTG	60
PPOM-41	CTGGCGATAACGGAAC	TGTTGGAGGATATTGGATT	GGAAGATGAAGATACTATTGCGGTA	60
PPOM-44	CTGGCGATAACGGAAC	TGTTGGAGGATAATGGATT	GGAAGATGAAGGTACTATNGCGGTA	60
P-PPO3	ACTCTGGTGCCAAAGAGAGG	TGGTGAAGGTATCTCCATT	GAAAGTGCGACGATCAGTCTT	120
PPOM-41	ACTTTGGTTCCAAAAGTAGG	TGGTGAAGGTGTATCCATT	GAAAGTGCGAGATCAAGCTT	120
PPOM-44	ACTTTGGTTCCAAAAGT	TGGTGGTGAAGGTGTATCCATT	GAAAGTGCGGAGATCAAGCTT	120
P-PPO3	GCAGATTGTTAATTAGTCTCTA	-TTGA-ATCTGCTG----	AGATTACAC-TTTGATGGAT	173
PPOM-41	GAGGATTGTTAAGTCCTCATGAG	TTGGTGGCTACGGTACCAAATTT	TATGTTTAATTAGT	180
PPOM-44	GAGGATTGTTAAGTCCTCATGAG	TTGGTGGCTATGGTACCAAATTT	TATGTTTAATTAGT	180
P-PPO3	GATGCTCTGTT--TTTGTTTTCT	TGTTCTGTTTTTTCCTC-TGTT	GAAATCAGCTTTGTT	230
PPOM-41	ATTAATGTGTGTATGTGTTTGATT	TATGTTTCGGTTAAAATGTATCAGCT	GGATAGCTGAT	240
PPOM-44	ATTAATGTGTG---TGTTTGATT	TATGTTTCGGTTAAAATGTATCANCT	GGATAGCTGAT	236
P-PPO3	-GCTTGATTTC---ATTGAAGTT	GTTATTCAAGAA-TAAATCAGTTA-CAATT-----		277
PPOM-41	TACTAGCCTTGCCAGTTGTTAATGCT	ATGTATGAAATAAATAAATAAATGGTTGCTCTCT		300
PPOM-44	TACTAGCCTTCCCAGTTGTTAATGCT	ATGTATGAAATACATAAATAAATGGTTGCTCTCC		296

Figure 5. Diagrams for some LifeSupport vectors

2-strain approach:



1-strain approach:

